

quicklooklz

A tool for producing quick look level 0 products.

\$Date: 2006/03/21 16:08:54 \$

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1 Quick-look Level 0 Packet Accounting (quicklooklz)

The Quick-look Level 0 packet accounting produces level zero data products as well as providing statistics and gap information for the processed data sets(archives) which are created by ITOS from frame level archives. A data set consists of either a set of packet archives, each one containing ITOS packet annotation headers and the CCSDS telemetry source packets for a single APID, or one packet archive that contains all headers and packets for all APIDs.

The quicklooklz task will create time ordered redundancy removed data products derived from ITOS generated telemetry archive files. The redundancies removed are all but one from a set of telemetry packets that contain the same apid, packet time, and sequence count. If redundant packets are found, the packet with the best data quality will be kept or if all have good quality the first packet will remain. The number of redundant packets is equal to the number of matching packets minus one.

The quicklooklz task will also create a report containing all the accounting information for the level-zero product. This information is extracted from the packet annotation header and the packet times in the CCSDS packet secondary header. The software will identify sequence count gaps and estimate the number of missing packets assuming no more than one roll over of the sequence counter for non consecutive counts. Some apids may be identified for omission from gap accounting since their counters may always contain gaps.

The data sets(packet archives) that are created from the frame archive must include the packet annotation header to be useful to this program. The header file created with the packet archive must include "anno12" in its encapsulation list.

- Command line arguments.
- Examples.

1.1 Command-line arguments for quicklooklz

The quicklooklz task is provided as part of the ITOS package. This task can be run stand-alone, from an xterm window, or through STOL using the section "SYSTEM" in "*ITOS STOL Directives*" directive.

```
quicklooklz -r <reportname> -f <input_filename> -n <output_filename> -i <inputdir> -o
<outputdir> -g <apidlist> -s <sortkey> -noanno -noproduct -t <tmpdir>
```

<code>-r <reportname></code>	Name of the generated report file. Will be appended with 'QL.RPT'. Defaults to <code>input_filename.QL.RPT</code>
<code>-f <input_filename></code>	File to process. Located in the <code>inputdir</code> directory.
<code>-n <output_filename></code>	File to write the level-zero product to if not overwriting <code>input_filename</code> .
<code>-i <inputdir></code>	Data set directory. Where the packet archives are located.

<code>-o <outputdir></code>	Data set report directory. Where to write the report to.
<code>-g <apidlist></code>	List of APIDs to omit from gap reporting (i.e. "26 82 84").
<code>-s <sort key></code>	List of sort keys (i.e. "time apid"). For reports.
<code>-noanno</code>	Remove annotation header from product.
<code>-noproduct</code>	Do not create the level-zero data product. Report only.
<code>-t <tmpdir></code>	Defaults to '/usr/tmp'. Used internally for building and sorting the packet statistics.

There are global mnemonics associated with this task. They are:

GBL_LZ_INPUTDIR. Contains the data set directory.

GBL_LZ_OUTPUTDIR. Contains the data set report directory.

GBL_LZ_GAPOMIT. List of APIDs to omit from gap reporting.

1.2 Examples using quicklooklz

If the globals associated with this task are set as follows:

GBL_LZ_INPUTDIR. = "/home/mission/archive/datasets"

GBL_LZ_OUTPUTDIR. = "/home/mission/archive/datasets/reports"

GBL_LZ_GAPOMIT. = "26 82 84"

then the minimal input needed to start the quicklooklz program from STOL using the section "SYSTEM" in "ITOS STOL Directives" directive would be:

```
system "quicklooklz -f \"myarchive*\""
```

This input would result in archives beginning with "myarchive" found in "/home/mission/archive/datasets" to be processed. The level-zero data product will have the same name as the input file. The resulting report "myarchive.QL.RPT" would be placed in "/home/mission/archive/datasets/reports" with APIDs "26 82 84" omitted from sequence count gap reporting.

To run quicklooklz from an xterm command line, which must be preceded by "itosrun", to produce the same result as above:

```
itosrun quicklooklz -f "myarchive*" -r "myarchive" -i "/home/mission/archive/datasets"
-o "/home/mission/archive/datasets/reports" -g "26 82 84"
```

Report example:

----- Summary Report for Data Set myarchive -----

```

6818530          # Data Set Size in Bytes
02-060-17:53:34  # Time of data set creation
25              # Total number of APIDs
25185           # Total number of Packets
25185           # Total number of Packets with RS enabled
0              # Total number of Packets with uncorrectable RS error
0              # Total number of Packets CRC error
13973          # Total number of Packet Sequence errors
280677         # Total number of Missing Packets
0              # Total number of Incomplete Packets
02-112-04:58:43.294296 # Earliest Packet Time
02-112-06:30:21.411880 # Latest Packet Time

```

APID	Packets	RSerror	CRCerror	Seqerror	Missing	Redundant
1	1093	0	0	0	0	0
2	1093	0	0	0	0	0
4	1093	0	0	2	0	2
11	1639	0	0	1638	14735	0
15	1639	0	0	1638	14735	0
25	546	0	0	545	4905	0
26	91	0	0	0	0	0
27	1093	0	0	1092	53457	0
28	547	0	0	546	54003	0
29	546	0	0	0	0	0
30	328	0	0	327	16006	0
35	546	0	0	545	4905	0
36	1093	0	0	1092	4368	0
37	546	0	0	545	4905	0
40	1271	0	0	0	0	0
50	546	0	0	545	4905	0
52	546	0	0	545	4905	0
53	546	0	0	545	4905	0
54	1821	0	0	1820	3640	0
55	1093	0	0	1092	4368	0
57	547	0	0	546	54003	0
58	365	0	0	364	5096	0
82	5464	0	0	0	0	0
84	546	0	0	545	26688	0
86	547	0	0	0	0	0

----- Apid 1 -----

```

1521456          # File Size in Bytes
1093            # Number of Packets

```

```

1093          # Total number of Packets with RS enabled
0            # Total number of Packets with uncorrectable RS error
0            # Total number of Packets CRC error
0            # Total number of Packet Sequence errors
0            # Total number of Missing Packets
0            # Total number of Incomplete Packets
02-112-04:58:44.102493 # Time of First Packet
4091          # Sequence Number of First Packet
02-112-06:30:22.220322 # Time of Last Packet
5183          # Sequence Number of Last Packet
02-112-04:58:44.102493 # Earliest Packet Time
02-112-06:30:22.220322 # Latest Packet Time

```

----- Apid 2 -----

```

852540        # File Size in Bytes
1093          # Number of Packets
1093          # Total number of Packets with RS enabled
0            # Total number of Packets with uncorrectable RS error
0            # Total number of Packets CRC error
0            # Total number of Packet Sequence errors
0            # Total number of Missing Packets
0            # Total number of Incomplete Packets
02-112-04:58:41.081314 # Time of First Packet
4090          # Sequence Number of First Packet
02-112-06:30:19.198700 # Time of Last Packet
5182          # Sequence Number of Last Packet
02-112-04:58:41.081314 # Earliest Packet Time
02-112-06:30:19.198700 # Latest Packet Time

```

----- Apid 4 -----

```

257948        # File Size in Bytes
1093          # Number of Packets
1093          # Total number of Packets with RS enabled
0            # Total number of Packets with uncorrectable RS error
0            # Total number of Packets CRC error
2            # Total number of Packet Sequence errors
0            # Total number of Missing Packets
0            # Total number of Incomplete Packets
02-112-04:58:57.223175 # Time of First Packet
4086          # Sequence Number of First Packet
02-112-06:30:20.236771 # Time of Last Packet
5175          # Sequence Number of Last Packet
02-112-04:58:57.223175 # Earliest Packet Time
02-112-06:30:20.236771 # Latest Packet Time

```

```
----- Apid 4 Sequence Errors -----
236          # Byte offset of Sequence Error
0            # Number of Missing Packets
3937         # Sequence Number of Previous Packet
3937         # Sequence Number of Packet
02-112-05:00:17.380386 # Previous Packet Time
02-112-05:00:17.380386 # Packet Time

472          # Byte offset of Sequence Error
0            # Number of Missing Packets
3937         # Sequence Number of Previous Packet
3937         # Sequence Number of Packet
02-112-05:00:17.380386 # Previous Packet Time
02-112-05:00:17.380386 # Packet Time
.
.
.
.
.
.
```